Welcome to RibbonFlex Pro®
Custom Color RGB LED Tape Lighting

Ultra thin and flexible, RibbonFlex Pro® custom color RGB LED lighting is easy to install in straight, curved and irregular spaces – offering virtually limitless design and installation possibilities. With red, green and blue LED chipsets, RGB LED lighting can produce a near endless array of colors, plus shades of white, making it exceptionally versatile for creative accent lighting.

30 RGB LEDs per meter (9 LEDs per foot), model # RF5050030-V2RGB

- Use in a wide range of residential, retail, and commercial lighting applications
- Perfect for adding color above cabinets, in coves and tray ceilings
- Create drama by edge lighting counter tops and toe-kick areas

Requires a 12V DC power supply and an RGB color controller, available separately. RGB color controllers blend the red, green and blue LED colors to create custom colors and color-changing effects. Various models are available, to learn more visit armacostlighting.com.

Please read these guidelines completely before installing.

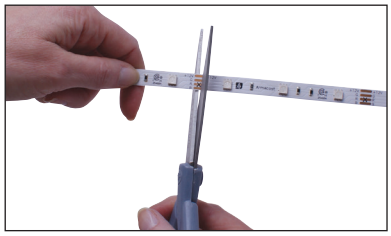
RibbonFlex Pro custom color RGB LED tape is a new and exciting type of lighting. It is important to read these guidelines completely to understand how the product works, and how it can be configured, cut to size, connected, and installed so you can design your LED lighting layout.

Installing tape lighting is an easy DIY project, however, basic wiring skills such as stripping, splicing, extending, and connecting wires are required.

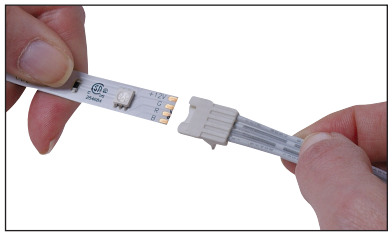
This product operates on low voltage 12V DC power. 12V DC power supplies are sold separately and are available in different wattages.

Visit armacostlighting.com for additional installation tips, ideas, and latest product information.

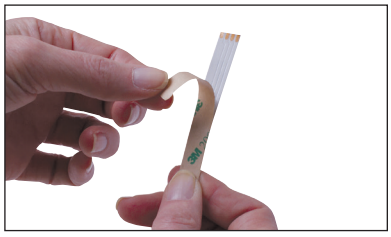
Cut to Size
Offers unlimited lighting design options for custom installations.



Connect with Ease
Use Armacost SureLock™ Connectors to join strips and add power wires.



Peel and Stick
Remove 3M paper backing from LED tape lighting and stick in place.



IMPORTANT

- Use only with low voltage 12V DC power source and 12V DC RGB color controller
- Do not stare directly into the LED lights when illuminated
- Do not power LED tape while coiled on reel
- Always use the +12V/G/R/B indicators printed on the tape light to maintain polarity and correct color sequencing
- Do not install this product in areas that are susceptible to direct exposure to the elements
- Use only insulated staples, plastic ties, or wire support clips to secure cords and wires
- Route and secure wires so they will not be pinched or damaged
- For any wire runs inside of walls, use properly certified CL2 or better cabling
- Do not install Class 2 low voltage wiring in the same runs as AC main power. If AC and low voltage wires cross, keep them at 90-degree angles

All wiring must be in accordance with national and local electrical codes, low voltage Class 2 circuit. If you are unclear as to how to install and wire this product, contact a qualified professional.

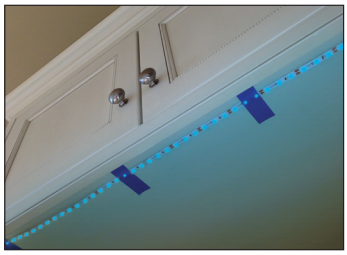
Planning

RibbonFlex Pro RGB LED lighting is designed for indirect lighting applications. The light from the LED tape is not to be seen directly by the eye. Every installation is unique and the illumination effects are personal preference. Installation location, wall colors, mounting angle, and the light's reflection off of walls, surfaces and objects will affect the final lighting appearance.

Installation considerations

- Where will you locate your power supply and RGB controller?
- How will you switch your LED lighting on and off?
- What is the best layout configuration for your installation?
- How will you run and conceal the wires to your LED tape lighting?

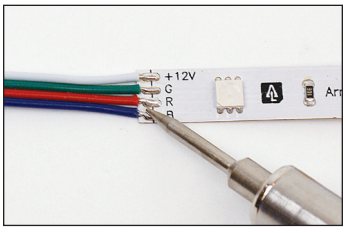
Important: Using painter's tape or masking tape, temporarily place the LED light strip into your desired mounting position. Power on the LEDs to make sure you are achieving the desired lighting effect before removing the 3M paper backing for final installation.



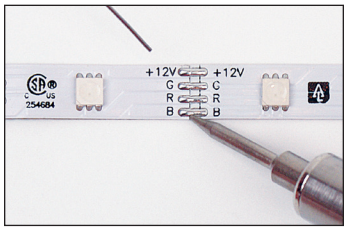
Temporarily mounting the LED light strip using painter's tape allows you to experiment with tape light positioning before permanent installation.

Optional Soldering of RibbonFlex Pro

Soldering is a fast and easy way to join wires and make splice connections. It is also the surest method for making extra reliable electrical connections.



Wire Lead Connection



Splice Connection

To learn how to solder RibbonFlex Pro, visit armacostlighting.com/installation.

Note: *Soldering connections is required for marine or RV applications due to vehicle movement and vibrations.*

Power supply location and voltage drop

The shorter the wire leads between the power supply, the RGB lighting controller and the LED tape lighting, the brighter and more consistent the lighting will be – do not coil extra wire. If the RGB LEDs farthest from the power supply appear dim or you see a color shift, it is due to voltage drop. Voltage drop only becomes undesirable if you notice the brightness or color in one area of your lighting is objectionably different than in another area.

For example, in a straight run, 16 feet of this RGB tape light will use about 29 watts of power. If using 4 conductor, 22 gauge RGB ribbon wire connected to your RGB color controller, the length of the cable should be no more than 10 feet. If longer runs of wire are required, splice 22 wire lead to a thicker 20 or 18 gauge wire. You can generally run about twice the length of 18 gauge over 22 gauge wire.

To determine what wire will work best in your design, visit armacostlighting.com/installation for an easy-to-use online voltage drop calculator.

Configuration options and LED tape light power requirements

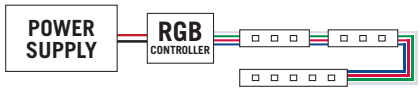
RibbonFlex Pro offers endless connection options to fit virtually any installation imaginable. LED tape strips can be installed in series (strips connected or wired end-to-end) or in parallel (multiple legs of LED strips or series of strips wired directly to a single power supply).

RGB LED tape lighting power requirements are stated in watts, and are based on several factors, including your design configuration (Straight Run, Center Feed/Loop Back or Array), voltage drop, and the length limitations of the LED tape lighting.

TYPICAL CONFIGURATIONS

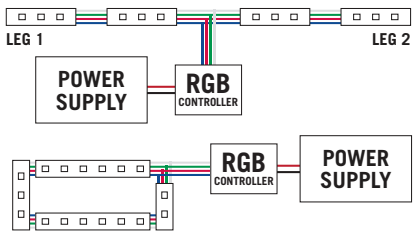
Straight Run

Only one end of the LED strip is powered. Multiple strips can be connected in a series for a continuous run. When set at 100% cool bright white, RGB LEDs farther away from the color controller may color shift to a warmer white.



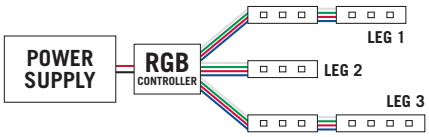
Center Feed / Loop Back

Either power two equal legs of tape lighting from the center or loop back and power both ends of the LED tape. These configurations will produce more consistent brightness and color over the length of the strip. A loop back is excellent for room perimeter tray ceiling or cove lighting.



Array

An array uses two or more legs of various lengths wired to an RGB controller in a parallel connection. You will need to calculate total wattage used in an array to guard against overloading the power supply.



Choosing a power supply

Each model of RGB LED tape has a specific length limitation based on the number of LEDs per meter and voltage drop. Choosing a higher wattage power supply does not necessarily mean you can run longer lengths of LED lighting, however, it will allow for more lighting legs in overall design. Exceeding the lengths in the following chart will cause LEDs farthest from the power supply to color shift when at 100% full bright white. Using a higher wattage power supply will not reduce the effect of voltage drop.

Maximum recommended tape length Model RF5050030-V2RGB, 30 RGB LEDs per meter	
Straight run configuration	10 meters (32.8 ft) – will use approximately 40 watts
Center feed configuration	20 meters (65.6 ft) – will use approximately 80 watts
Array configuration	Varies based on layout and max wattage of power supply

For larger installations, install an Armacost Lighting RGB Signal Amplifier with an additional power supply, or use several wireless or WiFi RGB controllers with separate power supplies in the same area, all paired to the same operating channel and controlled by a remote touchpad or smartphone. To learn more, visit armacostlighting.com/RGB.

Calculate the total wattage in your LED lighting system design

1. Using the chart below, determine the watts used in each leg of lighting. A straight run is considered one leg. A center feed is two equal lengths of lighting. An array can have many legs. As a best practice use the next longer length on the chart to determine approximate wattage per leg. Be sure to include only the lengths of LED tape in your calculation, not the connecting wires.
2. Add together the watts used for each leg of lighting to get total watts used in your lighting layout. Note that watts shown in the chart represent the approximate watts used when your color RGB LEDs are set at full bright white. White light uses more energy than colors.

Approximate watts used per meter at 100% bright white RibbonFlex Pro Model RF5050030-V2RGB – 30 LEDs per meter										
Meters	0.5	1	2	3	4	5	6	7	8	10
Feet	1.6	3.3	6.6	9.8	13	16.4	19.7	23	26.2	32.8
Watts used	**4**	**8**	**15**	**21**	**25**	**29**	**32**	**35**	**38**	**40**

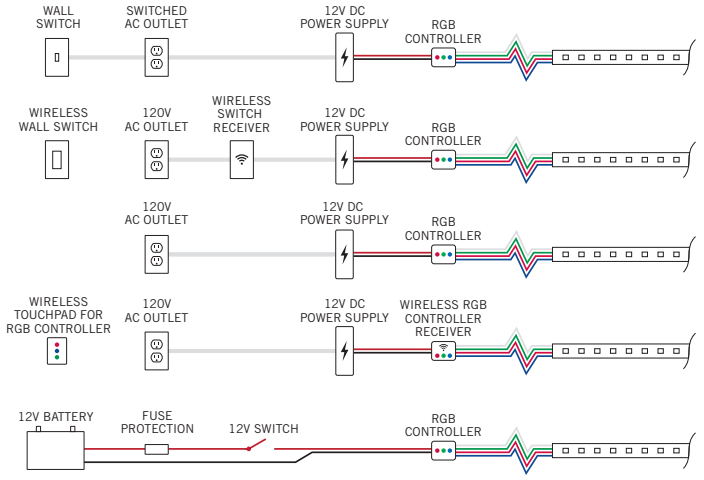
Watts used is the power consumed by your LED lighting system, not the watt rating of a power supply. Always choose a power supply rated greater than your needs. The watts used, as shown, are based on 100% full brightness white light. Color changing or dimming of RGB LED lighting will use less power and extend the life of LEDs. Due to voltage drop, longer lengths of LED tape will use fewer watts per meter than shorter lengths.

To accurately measure watts used by your LED lighting system, use a multimeter. Watts is calculated by multiplying volts by amps used in your LED system. To learn how to measure watts with a multimeter, visit armacostlighting.com/multimeter.

Switching and color control options

Depending on the model and location of your RGB color controller, you may be able to conveniently use it to switch on/off your LED lighting. Other options include plugging your power supply into a switched 120V AC outlet, or using an optional Armacost Lighting wireless wall switch. For current product information on RGB color controllers, visit armacostlighting.com.

TYPICAL CONNECTING AND SWITCHING OPTIONS



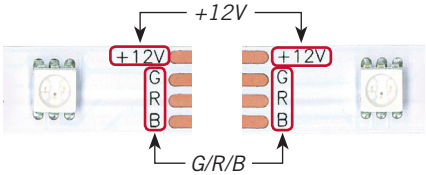
Interior RV and boat applications can be powered directly by 12V battery

Cutting, connecting and wiring

Warning: Do not connect LED tape to household 120V AC power. Only connect to an RGB color controller that uses 12V DC power.

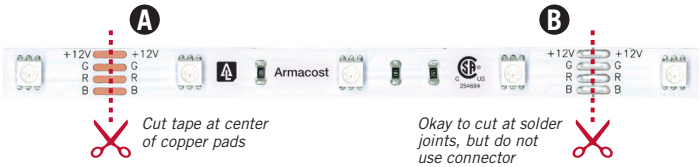
Always maintain same RGB wire polarity when connecting.

Use the +12V/G/R/B indicators printed on the RGB tape light to maintain the same polarity and correct color sequencing.



Cut with scissors

This RGB tape light model can be cut every 3 LEDs, or about every 4". Whether you are soldering wires or using connectors, cut the LED tape with scissors directly in the center of the copper pad as shown in position “A” below. You can also cut the tape at position “B,” however, do not use connectors on soldered tape light joints, you can solder wires at these joints.



Cut tape at center of copper pads

Okay to cut at solder joints, but do not use connector

SureLock™ Connectors

SureLock Connectors supplied with wire are used for going around corners or, when cut in half, to create two power leads (“jumper” cables) for bridging gaps and extending wires.

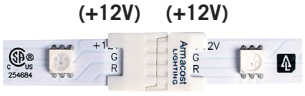
Actual wire length is 8"

To increase the length of wire between two RGB LED strips, simply splice in the extra length of wire required, 20 or 18 AWG is generally recommended. **Be sure to match polarity, +12V/G/R/B to +12V/G/R/B.** Do not coil wire; shorter lengths and thicker wire will mean less voltage drop, higher brightness and better color consistency.

Be sure all 12V connections are secure and sealed. Options include soldering and heat-shrink tubing, crimp connectors, terminal blocks, wire nuts, etc.

SureLock™ Splice Connectors

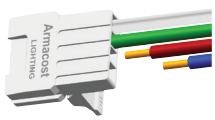
Splice SureLock Connectors are for joining two strips to create a continuous run of LED lighting.



If the +12V/G/R/B marks do not line up, flip the tape strip and use the opposite end for proper +12V/G/R/B alignment.

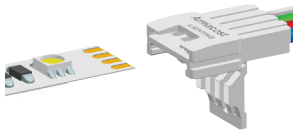
SureLock Direct-Connect System™

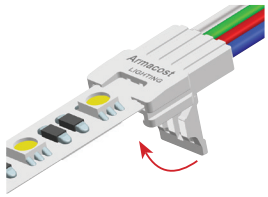
Also available and sold separately are Wire-Ready SureLock Connectors. Part of the Direct-Connect™ System, this solderless connection solution reduces the need for splicing wires and allows you to easily make wire lead connectors that fit the exact size requirements of your lighting system. To learn more visit armacostlighting.com/connectors.



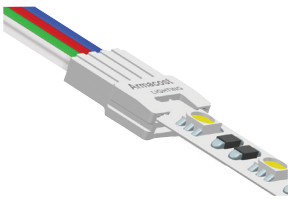
How to use SureLock Connectors

- Carefully peel back a small section of the 3M paper backing – remove only the paper, not the adhesive underneath.
- With the connector in an upright position (“Armacost” facing up), carefully insert the LED tape into the top channel grooves, as shown below.
- Be sure tape light is seated in the channel grooves. Using a slight side-to-side motion, push firmly so that tape slides fully into connector. This will ensure connector contacts make a secure connection with the LED tape.
- Turn the lighting on to test the connection prior to locking the pressure pad door.
- Once the lighting is working, securely lock the pressure pad door. If needed, apply gentle pressure using small needle-nose pliers to help lock the door in place within the grooves. Or put the tape and connector upside down on a hard surface and use a flat head screwdriver to close and lock the door in place.
- Perform an overall power test to ensure that all connections are secure and all the LEDs light before final installation.





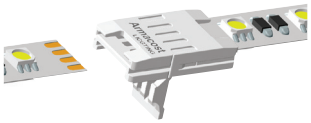
Once tape is fully inside connector, close and lock pressure pad door.



Ensure door is seated in both bottom side grooves before securely locking in place.

It is possible to reuse a connector, but it should be reinstalled on a fresh cut section of tape. Removing and reinstalling the connector on the same copper pad section may make the connection less reliable.

For how-to videos on on using SureLock connectors as well as soldering tips and techniques, go to armacostlighting.com/installation.



Follow the same instructions when using SureLock Splice Connectors.

Surface preparation and installing peel-and-stick LED tape lighting

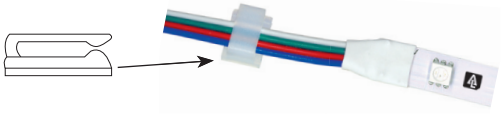
Before removing the 3M tan colored paper backing, it is important to test the LED strip in the space you intend to light. Once the paper backing is removed and the lighting is fully installed, you cannot reposition or move the LED tape light to another location. The tape may not stick securely.

1. Power the LED tape lighting and temporarily hold or tape into position with painter’s tape or masking tape – do not remove the 3M paper backing.
2. Adjust the lighting to various angles and positions to get the desired level of illumination and lighting appearance. If the LEDs create undesirable bright spots on walls, or reflections, reposition the tape light strip farther away from surfaces or try a different mounting angle.
3. Once you have determined your final mounting position, clean and prep the surface to ensure the 3M self-adhesive backing will adhere properly.

IMPORTANT

- Mounting surfaces should be smooth, clean, completely dry, dust free and above 60ºF (15 ºC) before installing/sticking the LED tape lighting.
- Thoroughly clean all mounting surfaces with a 50:50 mixture of isopropyl alcohol and water. For extra dirty surfaces, first use 100% alcohol or acetone. Avoid the use of household cleaners and polishes that may leave behind residues. Also avoid common rubbing alcohol.
- For best adhesion lightly sand the surface where you will mount the tape lighting with fine grit sandpaper (150-300 grit). Sand in a circular motion rather than straight-line motion.
- When installing on painted surfaces, paint should be fully cured based on manufacturer’s cure time.

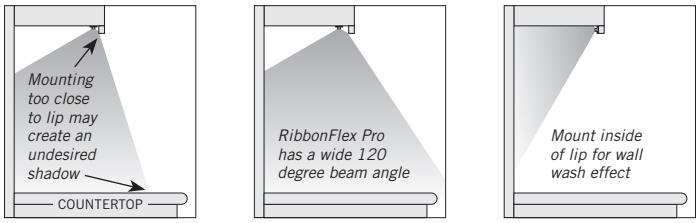
- Be careful not to peel off the 3M adhesive from LED strip, just remove the tan paper backing.
- 3M sticky back tape requires pressure to activate the adhesive. Using a clean dry cloth over your fingers and working from one end to the other, firmly press the tape down the entire length of the strip.
- Support power wire leads, especially when mounting under cabinets and shelves.



Although RibbonFlex Pro can be installed in curved and irregular spaces, avoid sharp bends or bending on the solder joints as you could damage the LED tape light. If an LED is inadvertently damaged and fails to light, the remaining LEDs will continue to operate. RibbonFlex Pro is made with 3 LEDs connected as one series. If you experience a failure, you can cut out and remove the damaged 3-LED series and splice together new and/or remaining LED tape.

Under Cabinet Tips

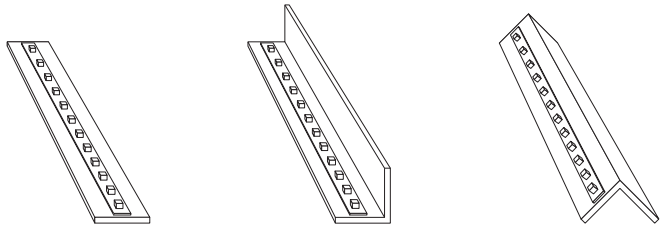
To surface mount LED tape lighting under a set of cabinets in one continuous run, drill a ½" hole through any cabinet side lip that may be present. Install LED tape lighting through the hole and surface mount as a continuous run.



When mounting under a cabinet or a shelf with no lip to hide the LED tape light strip, create a visual barrier by using trim strip molding mounted in front of the LED tape light.

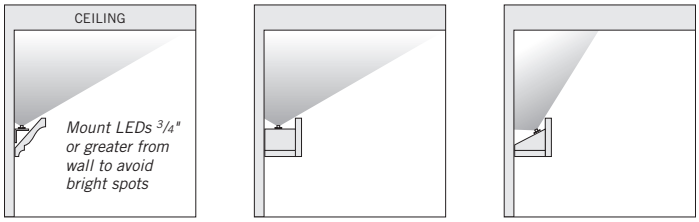
Above Cabinet Uplighting Tips

Most cabinet tops have uneven surfaces. To create beautiful indirect uplighting over cabinets, simply mount RibbonFlex Pro on any rigid strip (e.g., thin lattice or corner guard molding) and place on top of cabinets. Angle the strip position to achieve the desired illumination.



For a seamless glow and to avoid bright light spots, keep LED tape light strip at least 1" away from walls.

Cove Lighting TIps



Troubleshooting

RGB tape light strip does not light

- Make sure your LED power supply is turned on and receiving power.
- Confirm you have maintained correct polarity when connecting your 12V power supply to your RGB controller, and ensure that you have maintained polarity and consistent wire color sequencing (+12V/G/R/B) from the RGB controller to your LED tape light.
- Check all tape light and RGB controller connections from the power supply to the RGB LED tape light. Consider testing with a multimeter to ensure light strip is receiving 12V power.

Only part of the LED tape light strip is lit

- Check connections to the part of the strip that is not lit.
- Confirm that you have maintained correct polarity and wire color sequencing to the unlit section.
- If only 1 LED series is out, cut out and remove the damaged 3-LED group and splice together LED tape strips or replace with new 3-LED section.

LED tape lights blink on, then go off

- Your power supply is not adequate for the length of RGB LED tape light you are powering. Install a higher wattage power supply or reduce watts used by shortening the lengths of your LED tape lighting.

LEDs farthest from the power supply are noticeably dimmer or you see a color shift

- This is the result of voltage drop. Decrease the length of the 12V power feed wires or use thicker power feed wires between the 12V power supply, the RGB controller, and the tape lighting.
- Use shorter lengths of RGB LED tape lighting. Refer to **Configuration options** in these guidelines. Consider a different configuration.

Visit armacostlighting.com/installation for additional installation tips and FAQs.

Limited 3-year warranty

For terms and conditions, visit armacostlighting.com/warranty. Improper installation, abuse, or failure to use this product for its intended purpose will void warranty. This warranty only applies when all components, including LED power supplies, have been provided by or approved for use by Armacost Lighting. Substituting another manufacturer's product and/or components will void the warranty. The warranty does not cover labor or any other costs or expense to remove or install any defective, repaired or replaced products.

SPECIFICATIONS

Input Voltage	12V DC
LED Count	30 LEDs/m
LED Module	SMD 5050 tri-chip RGB
Beam Angle	120° wide
Tape Height/Width	2 x 10mm
Cuttable	Every 4" approx (100mm)
Listings	CE, RoHS, CSA
Country of Origin	China

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C SP US
254684
Conforms to UL Standard 8750

american lighting association

150607